



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION IV  
611 RYAN PLAZA DRIVE, SUITE 400  
ARLINGTON, TEXAS 76011-4005

JUL 25 2006

MEMORANDUM TO: Luis A. Reyes  
Executive Director for Operations *Bruce S. Mallett*

FROM: Bruce S. Mallett, Regional Administrator

SUBJECT: ONE-TIME DEVIATION FROM MULTIPLE/REPETITIVE DEGRADED  
CORNERSTONE COLUMN OF ACTION MATRIX -  
WATERFORD STEAM ELECTRIC STATION, UNIT 3

Inspection Manual Chapter 0305, "Operating Reactor Assessment Program," requires Regions to obtain approval from the Executive Director for Operations (EDO) to deviate from the regulatory actions prescribed by the Action Matrix, Section 06.05, of the Manual Chapter. The Action Matrix includes a range of licensee and NRC actions for each column of the Matrix. However, as discussed in the Manual Chapter, there may be instances in which the actions prescribed by the Action Matrix may not be appropriate. This memorandum requests your approval to deviate from some of the actions required by the Action Matrix for Waterford Steam Electric Station, Unit 3. The basis for the request is consistent with the Manual Chapter.

We request your approval to conduct the actions specified for the Licensee Response Column rather than the Multiple/Repetitive Degraded Cornerstone Column for a Red safety system unavailability (SSU) performance indicator (PI) for high-pressure safety injection (HPSI) and a Yellow PI for residual heat removal (RHR). These PIs were determined by the staff to be Red, and Yellow, respectively, following the conduct of a discrepant PI inspection. A deviation is being requested because we believe the actions outlined in the Licensee Response Column are more appropriate for the situation at Waterford 3 than those of the Multiple/Repetitive Degraded Cornerstone Column.

Background

On September 9, 2004, during leak testing, the test operator found containment safety injection sump suction Valve SI-602B partially open. The licensee determined that the condition had existed since November 11, 2003, when one of the valve limit switches was set incorrectly. Following identification of the condition (and correction) by the licensee, the Region conducted a significance determination (through Phase 3) which concluded that the issue was of very low safety significance (Green). Also, the region questioned the licensee as to how the partially open valve affected the availability of Train B of the HPSI and RHR systems (including containment spray) in regard to PI data reporting. The licensee had reported that all systems were available, even though the partially open valve posed two potential challenges to system availability under medium and large break loss of coolant accident (LOCA) conditions. First, the pressurized containment would force air, steam, and water through the valve and into the system flow streams. Air entrainment can cause pump damage or pump air binding, which can

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render the system trains unavailable. Second, the system suction lines could be pressurized sufficiently to force and hold closed reactor water storage pool (the initial suction source for the subject pumps) discharge check Valve SI-107B. This would starve the system trains of water, rendering them unavailable.

During the third quarter of 2005, the licensee completed an analysis that concluded that Valve SI-602B had not been open far enough to impact system availability. When the analysis was made available to the NRC, we reviewed the analysis and had a number of questions regarding the bounding assumptions that called into question whether the systems were actually available during the period in question. Following the 3rd quarter 2005 review of PI data, Region IV issued an Assessment Followup Letter informing the licensee that the NRC would be conducting Inspection Procedure 71150, "Discrepant or Unreported Performance Indicator Data," to resolve the potential discrepancy related to reporting the subject systems' unavailability. The inspection was deferred until early in calendar year 2006 as a result of the impacts from Hurricane Katrina. The inspection was subsequently conducted beginning March 6, 2006. The inspection findings concluded that Train B of HPSI and Containment Spray would, in fact, have been unavailable following a medium or large break LOCA for the period from November 11, 2003, until September 9, 2004. Based on this conclusion, it was determined that the HPSI Unavailability PI would have turned Red in Q2/2004, where it would have remained until the changeover to the Mitigating Systems Performance Index (MSPI). The RHR System Unavailability PI, which includes Containment Spray, would have turned Yellow in Q2/2004, where it would have remained until the changeover to MSPI.

#### Current Action Matrix Requirements

IMC 0305, Section 06.06.b, discusses issues that result in (1) the crossing of a performance indicator threshold and (2) the generation of a safety significant inspection finding. In these circumstances, the guidance states not to "double-count" the issues in the assessment program, but rather to use the most conservative significance characterization to determine the appropriate agency action in accordance with the Action Matrix. Therefore, for this specific case, since the inspection finding was determined to be Green via the Significance Determination Process (SDP) in 2004 and the performance indicators were determined to be Red/Yellow, the NRC would take the actions outlined for the Multiple/Repetitive Degraded Cornerstone Column of the Action Matrix. This column would require the licensee to place the issue in their corrective action program, perform an evaluation of the root and contributing causes of the issue, and implement a performance improvement plan with NRC oversight. The Region would conduct a Supplemental Inspection using Inspection Procedure 95003, conduct a meeting between the Regional Administrator or EDO and senior licensee management, and consider other regulatory actions, including a Confirmatory Action Letter, Order, 10 CFR 50.54(f) letter, and a 10 CFR 2.204 Demand for Information.

Basis for Deviation

On the basis of the following two considerations, I believe that the regulatory actions outlined in the Licensee Response Column of the Action Matrix are more appropriate for this situation.

- (1) The risk is more appropriately characterized at a Green level. One of the noted problems with the SSU PIs and the use of fault exposure time was that it overestimated the risk significance of the unavailability in this case. MSPI, which was implemented on April 1, 2006, provides a more accurate indication of the risk associated with changes in the availability and reliability of important safety systems in this case. In addition, since no monitored component failed and the systems in question have relatively low risk importance, the unavailability would not have resulted in any change in PI color (Green). Following identification of the erroneous valve position, the valve was promptly closed, reestablishing the functionality of the affected system. The licensee conducted a root cause evaluation of the underlying performance deficiency (mis-positioned limit switches) regarding SI-602B, and took actions to ensure that the condition was not present on other similarly operated valves. Work orders were initiated to perform field verification of other potentially affected valves. With respect to the long fault exposure time, the SDP incorporates fault exposure hours in determining the safety significance of the performance deficiency, and in this case the inspection finding was determined to be Green.
- (2) The very low risk evaluation result does not warrant the significant resources and expanded focus of a 95003 supplemental inspection. The difference in the PI and SDP results reflects the known limitations of the safety system unavailability PI (i.e., the indicator is not plant-specific or sufficiently risk-informed and it may overestimate the risk significance of single events with a large fault exposure time, leading to excessive Action Matrix responses).

Summary

In summary, I believe that these considerations indicate that the regulatory actions for the Licensee Response Column rather than the Multiple/Repetitive Degraded Cornerstone Column of the Action Matrix would provide the appropriate level of regulatory response and would constitute an efficient and effective use of staff resources. After discussion with and concurrence from the Office of Nuclear Reactor Regulation, I recommended your approval of this deviation from the Action Matrix for Waterford Steam Electric Station, Unit 3.

Approval: 

Luis A. Reyes, EDO

8/11/06

Docket: 50-382

cc:

B. Boger, NRR  
M. Case, NRR  
C. Holden, NRR  
J. Lamb, OEDO  
J. Andersen, NRR  
D. Terao, NRR

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**Original Signed by Luis A. Reyes**

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cc:

B. Boger, NRR M. Case, NRR C. Holden, NRR J. Lamb, OEDO J. Andersen, NRR  
D. Terao, NRR

bcc:

D. Chamberlain, RIV D. Graves, RIV  
A. Howell, RIV Larkin, RIV

SUNSI Review Completed:   DNG   ADAMS: ☒ Yes ☐ No Initials:   DNG    
☒ Publicly Available ☒ Non-Publicly Available ☐ Sensitive ☒ Non-Sensitive

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RIV:C:DRP/E	DD:DRP	DRA	RA	DD/DIRS	D:NRR	DEDR
DNGraves;mjs;d If	ATHowell	TPGwynn	BSMallett	MJCase	JEDyer	WFKane
VGGaddy For	/RA/	BSMallett for	/RA/	T- VGGaddy	T- VGGaddy	<i>[Signature]</i>
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